

REMARKS/ARGUMENTS

Claims 1-27 are pending in the application. Claims 1, 3, 10, 12, 19, and 21 have been amended. Reconsideration is respectfully requested. Applicants submit that the pending claims 1-27 are patentable over the art of record and allowance is respectfully requested of claims 1-27.

Claims 19-27 are rejected under 35 U.S.C. 101 as non-statutory. Applicants respectfully traverse. However, to expedite prosecution, Applicants have amended claims 19-27. In particular, Applicants have amended claim 19 to recite an article of manufacture embodied as one of hardware logic and a computer readable medium. For example, Applicants' Specification, page 5, paragraph 17, describes that the "term 'article of manufacture' and 'circuitry' as used herein refers to a state machine, code or logic implemented in hardware logic (e.g., an integrated circuit chip, Programmable Gate Array (PGA), Application Specific Integrated Circuit (ASIC), etc.) or a computer readable medium, such as magnetic storage medium (e.g., hard disk drives, floppy disks,, tape, etc.), optical storage (CD-ROMs, optical disks, etc.), volatile and non-volatile memory devices (e.g., EEPROMs, ROMs, PROMs, RAMs, DRAMs, SRAMs, firmware, programmable logic, etc.)."

Claim 3 is rejected under 35 U.S.C. 112, second paragraph. Applicants have amended claim 3 to place it in better form and to overcome the rejection.

Claims 1, 2, 4, 5, 8-11, 13, 14, 17-20, 22, 23, 26, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Vishlitzky et al. (U.S. Patent No. 5,819,310). Applicants respectfully traverse.

Claim 1 describes receiving a request for data and simultaneously initiating a search for the data on at least two storage areas using a different search technique for each storage area, wherein each storage area includes a copy of the data. Also, each search technique specifies a technique for locating the data on a storage area (e.g., Specification, page 3, paragraph 12 – page 4, paragraph 14). For example, with two RAID1 devices, a bottom-up search may be performed on one RAID1 device while, simultaneously, a top-down search is performed on the other RAID1 device (e.g., Specification, page 5, paragraph 16). In response to receiving an indication

from at least one of the storage areas that the data was located, the search is terminated on each of the other storage areas (e.g., Specification, page 4, paragraph 14).

On the other hand, the Vishlitzky patent describes assigning reading processes to each logical volume on a physical storage device (Col. 6, lines 41-46). The reading processes are defined at Col. 7, line 55-Col. 8, line 9 and describe whether a disk controller should read data from a particular logical volume (e.g., RP1 – read all data in the logical volume from this physical disk drive while RP2(Arg) - read all data in the first or second half of the logical disk drive).

The Vishlitzky patent describes, when the data processor issues a command to read data from one logical volume, both the device controllers respond initially, but differently (Col. 7, lines 8-11). Both begin processing the command, however, as part of that process, each device controller compares the requested logical volume and the data in the READ MODE field in its correspondency to select a corresponding reading process (Col. 7, lines 11-15). If the device controller is designated to read that logical volume, it performs the operation, and, if it is not, the device controller terminates further operations (Col. 7, lines 15-19). For example, if a read command specifies logical volume LVA in the particular system of FIG. 1, only device controller 20 responds and initiates the read operation from the volume M1-LVA on physical storage device 12 (Col. 7, lines 19-23). As other examples, the Vishlitzky patent describes assigning all reading operations from a first half of a logical volume to one physical storage device or disk drive and from the second half of the logical volume to the other, or mirroring, physical disk drive and assigning alternate blocks to be read from alternate physical disk drives (Col. 7, lines 36-49).

Thus, the Vishlitzky patent describes a technique in which a drive determines whether to search a logical volume depending on the read mode for that logical volume. This does not anticipate *simultaneously initiating a search for the data on at least two storage areas* using a different search technique for each storage area. Additionally, the reading process of the Vishlitzky patent only indicates whether or not a logical volume is to be read by a drive, and so the Vishlitzky patent does not anticipate *using a different search technique for each storage area, wherein each search technique specifies a technique for locating the data on a storage area*. Furthermore, because the Vishlitzky patent describes that one drive performs a search of a particular logical volume, the Vishlitzky patent does not anticipate, in response to receiving an

indication from at least one of the storage areas that the data was located, the search is terminated on each of the other storage areas.

Claims 10 and 19 are not anticipated by the Vishlitzky patent, either alone or in combination, for at least the reasons the same reasons as were discussed with respect to claim 1.

Dependent claims 2, 4, 5, 8-9, 11, 13, 14, 17-18, 20, 22, 23, 26, and 27 incorporate the language of one of independent claims 1, 10, and 19 and, at least by their dependency, are not anticipated by the Vishlitzky patent for at least the same reasons as were discussed with respect to claims 1, 10, and 19.

Additionally, claims 4, 13, and 22 describe that the number of storage areas to be searched is user specified. The Examiner submits that the Vishlitzky patent at Col. 4, lines 42-51, teaches "wherein all of the storage devices or area are transparent to the user and must be designed and specified by one in the art." Applicants respectfully traverse. The Vishlitzky patent provides a method and apparatus for facilitating reading operations from a pair of mirrored physical disk drives that is transparent to the user or host. Because of the transparency, the user is not able to specify the number of storage areas to be searched.

Claims 3, 12, and 21 under 35 U.S.C. 103(a) are rejected as being unpatentable over Vishlitzky et al. in view of Asmuth (U.S. 2004/0199683 A1). Applicants respectfully traverse this rejection.

Amended claims 3, 12, and 21 describes identifying storage areas to be searched based on at least one of a location of the storage areas relative to a data seek controller, data transfer rate between the storage areas and the data seek controller, and type of transmission medium between the storage area and the data seek controller.

The Examiner submits that the Vishlitzky patent at Col. 3, lines 53-61, discloses identifying the at least two storage areas based on at least one of a location of the storage areas relative to a data seek controller. Applicants respectfully traverse. The Vishlitzky patent does not identify at least two storage areas to be searched based on at least one of a location of the storage areas relative to a data seek controller. Instead, the Vishlitzky patent at Col. 3, lines 53-61, describes a "nearest server" algorithm to select one of the mirrored drives, and, in such systems, each read command initiates a process that determines which of two mirrored drives will be available first to begin a reading operation. Thus, the Vishlitzky patent describes a

technique for selecting one mirrored drive for performing a search. On the other hand, claim 3 is directed to identifying at least two storage areas to be searched.

The Examiner submits that the Asmuth patent application discloses determining/identifying the transfer and transmission medium in order to transfer the requested data. The Asmuth patent application on page 4, claim 2, paragraph 3, describes means for determining a data transfer rate required by each of one or more streams of data to be transferred between the storage device and the transmission medium, thereby determining a relationship between the required data transfer rate to an available burst data transfer rate. Such a determination does not teach or suggest identifying the at least two storage areas to be searched based data transfer rate between the storage areas and the data seek controller or type of transmission medium between the storage area and the data seek controller.

Thus, claims 3, 12, and 21 are not taught or suggested by the Vishlitzky patent or the Asmuth patent application, either alone or in combination.

Claims 6, 15, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vishlitzky et al. in view of Honarvar et al. (U.S. 2003/0204426 A1). Applicants respectfully traverse.

Claims 6, 15, and 24 describe that the search technique for a first of the at least two storage areas is a top down search and wherein the search technique for a second of the at least two storage areas is a bottom up search. Independent claims 1, 10, and 19, from which claims 6, 15, and 24, describe that each search technique specifies a technique for locating the data on a storage area. The Honarvar patent application describes that search results can be displayed/navigated in a top-down manner or a bottom-up manner (page 9, paragraph 139, last sentence). The description of search results does not teach or suggest simultaneously initiating a search for the data on at least two storage areas using a different search technique for each storage area, wherein each storage area includes a copy of the data, where the search technique for a first of the at least two storage areas is a top down search and wherein the search technique for a second of the at least two storage areas is a bottom up search.

Thus, claims 6, 15, and 24 are not taught or suggested by the Vishlitzky patent or the Honarvar patent application, either alone or in combination.

Claims 7, 16, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vishlitzky et al. in view of Dahlen (U.S. Patent No. 5,317,749). Applicants respectfully traverse.

Claims 7, 16, and 25 describe that at least one search technique is selected in a round robin manner. Independent claims 1, 10, and 19, from which claims 7, 16, and 25, describe that each search technique specifies a technique for locating the data on a storage area. The Vishlitzky patent describes that the system operator selects a read mode for each logical volume (Col. 11, lines 52-53). The read mode indicates whether a drive is to read a logical volume. The read mode does not teach or suggest the claimed search technique. Also, the Dahlen patent describes that the advantage of the round robin method is that no processor will ever be locked out of access (Col. 10, lines 43-44). Neither the Vishlitzky patent nor the Dahlen patent describes using a different search technique for each storage area, wherein each storage area includes a copy of the data and wherein each search technique specifies a technique for locating the data on a storage area. Thus, the combination of the Vishlitzky patent and the Dahlen patent does not result in one of the claimed search techniques being selected in a round robin manner.

Thus, claims 7, 16, and 25 are not taught or suggested by the Vishlitzky patent or the Dahlen patent, either alone or in combination.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-27 are patentable over the art of record. Applicants have not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact her at (310) 553-7973 if the Examiner believes such contact would advance the prosecution of the case.

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